SWIS # 29-AA-0001

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 96-027

WASTE DISCHARGE REQUIREMENTS

FOR
COUNTY OF NEVADA
DEPARTMENT OF SANITATION
MC COURTNEY ROAD LANDFILL
CLASS II SURFACE IMPOUNDMENTS
AND
CLOSURE OF
CLASS III LANDFILL

1. The McCourtney Road Landfill is a 244-acre facility owned by Nevada County and operated since 1973 by the Nevada County Department of Sanitation (hereafter referred to as Discharger). The site comprises Assessor's parcel numbers 25-120-12, 25-13-46, 25-13-47, 53-20-41, 53-20-44, 53-31-15, 53-31-17, and 53-31-18. The facility is now regulated by Waste Discharge Requirements (WDR) Order No. 91-229.

2. The facility is at 14741 Wolf Mountain Road, approximately six miles southwest of Grass Valley, in Sections 5, 8, and 9, T15N, R8E, MDB&M, as shown in Attachment "A", which is incorporated herein and made a part of this Order.

3. The solid waste disposal facility comprises approximately 157 acres, and includes several waste management units. The waste management areas of the site can be divided into the [1]Burn Area, the [2]White Metals Disposal Area, the [3]1976 Disposal Area (76 Cell), [4]the Old Landfill Mass (OLM), the [5]Winter 1989 Disposal area and the [6]Summer 1990 Disposal Area (together referred to as the 89-90 cell), the [7]1990-91 Disposal Area (90-91 Cell), [8]the Wood/Yard Waste Management Area, the [9]Old Septage Pond Area (OSPA), and two Class II surface impoundments, comprising a 5.2 million-gallon pond and a 1.3 million-gallon pond, respectively. Additional waste management facilities include a front-end municipal waste transfer station and recycling facilities. Ancillary facilities include three sedimentation basins, two leachate pump stations, and landfill gas collection and treatment facilities. These areas are all shown on Attachment "B", which is incorporated herein and made a part of this Order.

4. Municipal landfill operations began in 1973. Between 1952 and 1973, the site was operated as a burn dump. From 1973 through 1992, the facility operated primarily as a Class III Landfill using the cut and cover method, and as a liquid waste disposal site.

5. In compliance with Title 23, Division 3, Chapter 15, California Code of Regulations, the Discharger submitted a Report of Waste Discharge (RWD) dated 15 May 1990 describing significant operational changes proposed for the period 1990-1993. Those changes included reclassification of the then-existing septage handling facilities, changes in leachate and septage disposal practices, a new landfill gas recovery system and implementation of an Evaluation Monitoring Program, and other proposals which have not been implemented. Waste Discharge Requirements Order 91-229 was adopted by the Board on 22 November 1991 to address the proposals in the RWD. On 30 November 1992, the site ceased taking municipal wastes for landfilling, and the 90-91 cell became inactive. During the summer of 1995, the 76 Area and the White Metals Disposal Area were exhumed and clean-closed as corrective actions to reduce potential sources of ground water pollution. Closure of the 90-91 Cell and the other, older landfill cells is pending. The septage facilities are no longer in use, and the Discharger has proposed a

change in the use of one of the surface impoundments. These WDRs update Order 91-229 to address closure requirements and the need for corrective action and corrective action monitoring.

6. In May 1989, the California Integrated Waste Management Board (CIWMB) issued a Notice and Order (NAO) for numerous violations of Nevada County's Solid Waste Facilities Permit and for failing to meet the State minimum standards contained in Title 14, Chapter 3, California Code of Regulations. In January 1990, due to subsequent violations of the previous Order, the CIWMB took further enforcement action through an amended NAO. The amended NAO included provision for seeking injunctive relief for failure to complete required work. The CIWMB later pursued a lawsuit against the County and on 28 February 1991, a Stipulated Agreement or "Judgement Pursuant to Stipulation" (JPS) was signed between representatives of the CIWMB and Nevada County. The Stipulated Agreement was filed in Superior Court on 4 March 1991.

7. The Discharger also submitted a revised Water Quality Solid Waste Assessment Test (SWAT) Report dated March 1990, a Sampling and Analysis Plan dated January 1992, and a Phase I Hydrogeologic Report dated June 1990. Also submitted were revised Article 5 Monitoring and Response Programs dated July 1993 for Detection and Evaluation Monitoring. Information contained in the RWD and these reports includes a site evaluation, a waste characterization report, landfill facility design information, and a plan for monitoring ground and surface waters.

8. Under the terms of the Stipulated Agreement and WDR Order No. 91-229 additional technical reports were required. The Discharger has submitted: a Phase II Hydrogeology Report dated November 1991; Site Background and Waste Characterization Summary Reports, Volumes I and II, dated May 1993; a Surface Hydrology Summary Report dated May 1993; a Liquids Management Plan dated May 1993; a Site Hydrogeology Summary Report dated June 1993; a Soil and Sediment Conditions Summary Report dated August 1993; and other reports and workplans for closure of the former unlined septage ponds and assessment of other site conditions. In 1995, as part of site assessment for closure and corrective actions, the Discharger has submitted a review of the Detection Monitoring Proposal and the Evaluation Monitoring Monitoring Proposal documents dated 25 July 1995, a Review of Previous Slope Stability Analysis dated July 1995, and a Review of Existing Cover Conditions and Alternatives dated October 1995. Information contained in these documents summarizes and updates existing knowledge of site hydrogeologic, engineering, and operational conditions.

9. The landfill had been scheduled for closure in the year 2005. The Stipulated Agreement (hereafter JPS) contains several provisions regarding closure, including a requirement that the County begin work by 1 February 1992 on a study evaluating alternative landfill sites. Although specific dates for the site closure are not stipulated in the JPS, submittal of a Final Closure and Post-Closure Maintenance Plan was required if the County did not submit a complete application for a revised Solid Waste Facilities Permit by 31 December 1992. This application was not submitted. Instead the Discharger submitted a Draft Final Closure and Post-Closure Maintenance Plan dated December 1992. The JPS further stipulated that if a completed application for a Revised Solid Waste Facilities Permit were not submitted by 30 September 1993, closure of the landfill must be complete by 1 October 1994. The landfill ceased taking municipal Class III wastes on 30 November 1992, but the Discharger has not yet submitted an acceptable closure plan, and is in violation of the JPS.

10. The Discharger's Final Closure and Post-Closure Maintenance Plan, dated January 1994, was found to be inadequate by the reviewing agencies. A revised Final Closure and Post-Closure Maintenance Plan addressing the concerns of the agencies was to have been submitted in November 1994, but is overdue. These WDRs require the Discharger to submit an acceptable revised Closure and Post-Closure Maintenance Plan by 15 March 1996.

11. As remedial actions in response to concerns about releases of leachate and contaminants, the Discharger proposed separate, clean closure of two older landfill disposal areas, known as the White Metals Disposal Area and the 1976 Area ('76 Cell). Draft workplans for these clean-closures were submitted in December 1992, and final plans dated January 1994, were approved in May 1994. The clean-closure operations commenced in July 1995 and were completed in November 1995.

Waste Classification

12. From 1973 through 1993, Class III municipal wastes were discharged to several waste management units on the site. These wastes are classified as "nonhazardous solid waste" using the criteria set forth in Chapter 15. Waste Management Units, all now inactive, that received these wastes are the Old Landfill Mass (OLM), the '76 Cell, the '89-'90 Cell, and the '90-'91 Cell. They are shown in Attachment B. In addition, in 1986 the OLM also received septage pumped from septage ponds in the Burn Area into a small unlined pond constructed in the northwestern corner of the OLM. The contents of this pond seeped into the OLM.

13. The Discharger also proposed to discharge wastes containing greater than one percent friable asbestos in the Class III units. These wastes are classified as "hazardous" under Title 22 CCR. However, since these wastes are not considered to pose a threat to ground water, Section 25143.7 of California Health and Safety code permits their disposal to any landfill that has WDRs specifically permitting this discharge. Although this discharge was permitted under WDR Order No. 91-229, according to the Discharger's Site Background and Waste Characterization Summary Reports dated May 1993, the operators never knowingly accepted asbestos-containing wastes at the newer landfill cells. Wastes containing asbestos that were disposed to the OLM were tracked under manifest.

14. Beginning in about 1977, white metal refuse, tires and batteries were deposited on the ground surface in the White Metals Disposal Area (WMDA), an area about 300 feet by 50 feet just inside the site entrance on the south side of the entry road. The area was used primarily to collect, store and bury scrap metal, household appliances, car parts, bed springs, and other metal wastes. Historically, larger white metal items were sold as scrap or buried with other refuse in the OLM. Smaller materials were buried in the area over a 4 month period in 1989. Geotechnical investigations and investigation of former household hazardous wastes, as reported in two reports dated 1991, found potentially hazardous materials in test trenches dug into the WMDA. As a result of these investigations, the Discharger proposed to exhume the WMDA, remove and characterize the wastes, and dispose of all Class III wastes in the 90-91 cell and other wastes off-site as appropriate and needed. The excavation was completed in August 1995, with no hazardous wastes found. Confirmation sampling of the subsoils was performed on 1 September 1995, and final grading was completed in November 1995.

15. The Discharger also excavated the '76 Cell and disposed of its Class III wastes to the 90-91 landfill during the summer of 1995. Hazardous wastes were not found. Confirmation sampling of subsoils beneath the '76 excavation was conducted during August 1995 and final grading was completed in November 1995. Both this clean-closure and that of the WMDA were considered corrective actions by regulatory agencies, and the Discharger will undertake Corrective Action Monitoring to assess their effects.

16. Until October 1990, septage received at the site was discharged to approximately 18 small unlined ponds constructed on top of a broad east-west trending ridge north and adjacent to the OLM. This

area is shown as the Old Septage Pond Area (OSPA) on Attachment B. Wastes received in these ponds were classified as "designated" using the criteria set forth in Chapter 15. Typical wastes discharged included leachate from the Leachate Collection and Removal System (LCRS) underlying the waste management units, sludge from wastewater treatment plants, septage from local haulers, and chemical toilet wastes from on-site facilities and from local haulers. After October 1990, to comply with CIWMB Amended Notice and Order No. 89-01 requiring that all contaminated liquids be discharged to lined surface impoundments meeting Chapter 15 requirements, discharge of designated wastes to these ponds was stopped. Residual wastes and soils from the septage ponds were cleaned out and discharged to the 90-91 cell. The Discharger tested the subsoils in the ponds in 1991 and again in December 1993. The sampling results indicate that, with the exception of ponds 8 and9, where some areas of elevated metals concentrations may be present, the soils are acceptable for re-use as appropriate in other on-site engineering projects. Some sludge from ponds abandoned before 1990 apparently was discharged to the working face of the 89-90 cell.

17. After discharge to the old septage ponds ceased, an existing pond, the "Microwave Pond", or "Magic Pond", in the OSPA, was used as a septage transfer facility. This facility contained a Baker tank in which septage and other liquids were stored before being transported off-site. The facility was designed as an additional or emergency containment capacity for contaminated liquids (leachate, liquids extracted from on-site wells and piezometers, contaminated runoff, and seepage waters). Transfer of septage via this facility continued until 1992, when the Baker tank was removed. The Microwave Pond is no longer used as a waste management unit, although it has not yet been closed or filled.

18. The Microwave Pond has a clay liner. The Discharger proposes to clean close the pond and possibly reuse the clay liner for foundation material at other WMUs. Closure of the pond will be completed by grading the site to drain into the north surface drainage basin. These WDRs require that the microwave pond liner be sampled prior to pond closure or reuse of the clay, and that the pond be closed according to Chapter 15 standards.

19. Leachate from the landfill units and surface impoundments Leachate Collection and Recovery Systems (LCRSs) is discharged to a 5.2 million-gallon (MG) Class II surface impoundment, which was constructed in the OSPA. This discharge will continue for as long as leachate management remains necessary on the site, during the closure and post-closure maintenance period. Leachate is a "designated" waste under the criteria set forth in Chapter 15. This impoundment also receives septage from the on-site septic tank, and may in the future receive condensate from the landfill gas recovery system.

20. Since December 1989, liquids decanted from the 5.2 MG surface impoundment have been transported to the Lake Wildwood wastewater treatment plant for further treatment and disposal. The Discharger proposes to continue disposal of these liquids to the Lake Wildwood plant from November through April each winter season, as long as necessary for leachate management and freeboard control. The treatment plant is capable of receiving up to 150,000 gallons per day of partially treated liquids from the landfill during the November through April period.

21. A 1.3 MG Class II impoundment was constructed next to the 5.2 MG impoundment. The Discharger proposed to use the 1.3 MG pond for secondary or emergency containment of contaminated liquids and leachate, but in 1994, the pond was drained. The Discharger proposed to clean the pond, and to use it for fire suppression water storage, if analyses of the cleanout waters showed that they were not contaminated. The pond has been emptied and cleaned but is not now in use. Use of the 1.3 MG pond for storage of fire suppression waters is subject to approval of the

Nevada County Fire Marshal and the RWQCB, and is based on confirmation sampling showing that the waters constitute no threat to water quality. The pond will be emptied if necessary to restore it to use for leachate management.

22. Solids removed from the Class II surface impoundment and dewatered sewage and water treatment sludge were disposed to the Class III landfill units under WDR Orders Nos. 87-189 and 91-229. This disposal ceased in 1992. Since then, these wastes have been transported off-site.

23. Before 1972, wood and yard waste, including stumps and brush, were reportedly burned along with other burnable refuse in the northern third of the landfill site. Residual from the burned wood waste was buried in the landfill. After 1986, stumps were no longer accepted and brush was buried with refuse in the landfill. After spring 1992, brush and other yard wastes were shredded. Wood waste and heavy brush are sold to cogeneration plants and other commercial users. Leaves and clippings are windrowed in a lined and bermed area, shown in Attachment "B". Proposals for pilot programs for adding dewatered sewage sludge and/or waste paper in a co-composting process were not implemented. Some chipped wood wastes were used experimentally as aids in erosion and sedimentation control in various locations on the landfill site during fall of 1994 and previous years, but these WDRs specifically require the Discharger to submit a workplan and obtain prior approval from Board staff before using wood wastes for erosion control in the future. The Discharger now proposes to use rice straw for erosion control purposes.

24. The McCourtney Road Recycling Facility (MRRF) comprises the wood/yard waste diversion area, a recycling area for California deposit containers, recyclable metals and paper, processing of refrigerated appliances and a temporary hazardous waste storage area. This facility is still active but, according to the Site Background and Waste Characterization Report dated May 1993, was never permitted by regulatory agencies.

25. The McCourtney Road Transfer Station (MRTS; formerly the Public Receiving Area), began receiving municipal solid waste hauled to the site by the public in 1992. This activity continues under separate permit from the County and CIWMB. Wastes received at the station are processed under a covered area and then hauled off-site. There is no permitted discharge of wastes to the McCourtney Road landfill site. The facility has a LCRS consisting of a leachate sump and a drain line that is pumped to the 5.2 MG Class II impoundment. Washdown water from the MRTS also is contained in the 5.2 MG pond. Liquids from the 5.2 MG impoundment are trucked to the Lake Wildwoood treatment plant as necessary to maintain pond freeboard. The Discharger intends to continue these procedures for the life of the MRTS facility.

26. The Discharger planned to design and construct a ground water extraction system upgradient from the '90-'91 cell for maintaining adequate separation between wastes and ground water, as required by Chapter 15. Dewatering may be needed to ensure compliance with Chapter 15 and with the JPS, which specifies maximum allowable water elevations in adjacent piezometers. Well PW-1 was installed to control ground water elevations, but a contingency plan for maintaining adequate separation of ground water from wastes, should ground water levels rise above the elevations prescribed in the JPS, has not been submitted. These WDRs specify in Provision C.16 a time schedule for completing the contingency plan. Water pumped from well PW-1 is discharged to surface drainages on-site, to the 5.2 MG pond, and/or is used for dust control and to maintain the fire suppression reservoir. This well often goes dry in the summer months.

27. The Discharger has proposed discharge of liquids from extraction of uncontaminated ground water from the dewatering operation at the 90-91 cell to the facility's south sedimentation basin under a National Pollutant Discharge Elimination System (NPDES) permit. The Discharger also plans to

address off-site discharge of storm waters diverted from the surface of the 90-91 cell and diversion of waters flowing onto the site from off-site sources in an NPDES permit. These permits have not yet been obtained, although the Discharger has filed a Notice of Intention (NOI) to comply with General Order 93-230 and to obtain a general stormwater permit.

Description of the Facility

28. Of the 244-acre site, approximately 157 acres were designed for landfill operation, support operations, and site entrance. In addition to the disposal area, there are two buffer zones with a combined area of 87 acres. The County has built an animal control facility on a portion of the buffer zone. The intention was to dispose of liquid wastes from the animal control facility to the landfill's surface impoundments, but this practice was never implemented, and the animal control facility now has an alternate disposal method.

29. The principal location for disposal of refuse was a 24.9-acre site known as the Old Landfill Mass (OLM). The OLM, as shown on Attachment "B", was south of the Burn Area and north of the now-closed '76 Cell. The OLM was developed across a well defined drainage course at the head of a ravine. That drainage originally included several tributaries converging to French Ravine. Several springs and/or seeps were buried during early development of the landfill. The highest elevation of refuse is approximately 2,300 feet mean sea level (MSL), nearly level with the pre-landfill ridge top to the north.

30. Filling of the OLM, with residential and commercial solid wastes, took place randomly between about 1972 and 1989. Refuse depth was probably about 80 feet near the center of the OLM in the deepest portion of the ravine. The lowest elevation of refuse in the OLM is near the base of the landfill dike (hereafter embankment) at the eastern end of the old mass, at elevation approximately 2,165 feet MSL. Refuse placed in this area may be in direct contact with ground water during certain times of the year.

31. Constructed in 1972 on the east side of the OLM, the embankment spans the original east-flowing drainage over which the '76 cell was later constructed. The embankment is approximately 850 feet long, 240 feet wide at the base, 15 feet wide at the top, and approximately 100 feet high. Boring logs indicate that the embankment was built in two stages and that portions of the second stage embankment were built on or with refuse. During the fall of 1989, an embankment buttress, approximately 30 feet high and 50 feet wide was constructed. Anderson Geotechnical Consultants designed the buttress to achieve a safety factor of 1.34 under assumed worst-case conditions.

In 1993, using new information developed by Nevada County Department of Sanitation for the closure plan, Anderson Geotechnical recalculated the factor of safety (FS) for the embankment. Based on a maximum probable earthquake of 6.0 on an unspecified fault in the Foothills Fault System, a design ground acceleration of 0.17g, and assuming no resonance and highest probable elevation of ground water, the FS was calculated as 1.8. Theoretical failure would occur at acceleration = 0.5g, considered unlikely in Nevada County. Other published sources have attributed a possible Richter 6.5 earthquake to the Foothills Fault Zone. The Discharger's consultant, GeoLogic, has submitted a recent summary and review of previous slope stability analyses at the site and supports the FS of 1.8 for static conditions but recommends additional dynamic analysis.

32. Geotechnical investigations have identified leachate mounds in the OLM behind the embankment. The mounds apparently resulted from ground water inflow into unlined portions of the landfill mass and excessive infiltration through areas having poor intermediate cover. In 1989, five wells

were installed within the OLM for measuring liquid levels and if necessary, for dewatering. However, these wells (hereafter leachate wells) became dry shortly after being installed.

33. The five leachate wells currently provide the only significant means for leachate collection and removal below 2,200 feet MSL. According to the Discharger, the dry condition of the leachate wells has prevented characterization of leachate production below 2,200 feet, and has precluded the need for preparation of a specific dewatering plan, except to prevent significant accumulation of leachate mounds from impairing the integrity of the embankment.

34. Most of the flow into the original LCRS in the OLM consists of water originating from a buried spring. This water was originally diverted to off-site drainage sources via a buried piping system that daylights near the upstream toe of the embankment. As filling of the WMU progressed, the spring interceptor was connected to the leachate interceptor and both sources of water were handled as leachate and pumped to the 5.2 MG pond via the main pump station. The spring appears to be several hundred feet west of the leachate pump station. There is flow from the buried piping system year round. The flow is typically between 5 and 10 gallons per minute (gpm). Water collected from the buttress subdrains also is diverted to the main leachate pump station.

35. According to the 1993 Site Background and Waste Characterization Reports prepared by ACG, the Discharger's consultant, there is no record of a construction quality assurance plan or certification report to verify the constructions of the LCRS and subdrain.

36. The 1993 Site Background and Waste Characterization Report states that there is no evidence of a base liner being constructed beneath the OLM. The Discharger has stated that the 1970 plans for the OLM indicated substantial formations of the clay under the site that were intended to serve as the bottom containment liner for the waste, i.e., that natural geologic materials were to be used.

37. Construction plans for the OLM reportedly showed that soil cover placed over the area was intended to be a borrow source for construction of the embankment, and was to be placed in depths up to 10 feet below original grade prior to refuse deposition.

38. The winter 89 and summer 90 cells are, respectively, approximately 6.2 acres and 1.9 acres in area. Both received municipal wastes. The winter '89 area is next to the OLM and is partially overlain by the summer 90 cell. Collectively these two areas are called the 89-90 cell. The winter 89 cell was not designed and is unlined. The summer 90 cell was designed and constructed next to and partially over both the winter 89 cell and the OLM. According to certification reports filed by EMCON, the summer 90 cell is lined and includes a LCRS.

39. The 5.1 acre 90-91 cell was excavated west of the OLM, northwest of the winter 89 and summer 90 cells. According to the engineering reports prepared by EMCON (1990 and 1992), liner components for this cell consist of a 60-mil high density polyethylene (HDPE) inner liner overlain by a blanket-type LCRS and one foot of compacted clay. The LCRS consists of 12 inches of gravel on the cell floor. The total capacity of this WMU was estimated at approximately 246,000 cubic yards. This capacity was expected to be reached by January 1993, but disposal had ceased by that date.

40. The 1991 cell was originally sited and designed to provide greater than five feet of separation between wastes and underlying ground water. During construction, ground water was encountered 9.5 feet below the base liner. A subdrain was installed along the south toe of the excavation in an attempt to maintain adequate separation and prevent excessive uplift on the base liner. The subdrain is seven feet deep, with the pipe invert at least 6.5 feet below the base of the

liner or 10 feet below refuse. EMCON concluded that the 90/91 cell was constructed in a manner consistent with the intent of the "drawings and specifications, and consistent with good construction practices". The Discharger states that the during the existence of the subdrain it has produced little water, and for this reason the Discharger believes that the subdrain is an adequate protector and control of underlying groundwater.

41. In summer 1995, as part of the corrective action clean-closures of the '76 and White Metals Areas, Class III wastes, soils, some overburden, and soils from the compressor oil spill area were placed on top of the 90-91 cell. This discharge, part of a one-time remedial action, occurred following waste characterization and was consistent with wastes in the 90-91 cell.

42. The Discharger prepared the 90-91 cell for winter 95-96 using an interim cover that will double as foundation layer for the final cover. Materials used in the interim cover conform to the prescriptive standards of Chapter 15. The winterization was scheduled to be completed by 15 December 1995.

43. The existing 5.2 MG Class II surface impoundment is used for leachate control. Liner components for this impoundment consist of an 80-mil high density polyethylene (HDPE) inner liner underlain by a blanket-type LCRS and four feet of compacted clay. The LCRS consists of a geofabric net on the sidewalls and 5 inches of gravel on the impoundment floor. The impoundment was first operated in 1987.

44. Heavy leakage through both liner systems necessitated draining of the 5.2 MG Class II surface impoundment several times during the latter part of 1988. Defective seams in the primary liner were repaired. In June 1989, three surface aerators were installed for odor control and evaporation enhancement. Liquids are now recirculated between aeration and sedimentation chambers within the impoundment. A synthetic curtain wall separates the two chambers.

45. A 1.3 MG Class II surface impoundment adjacent to the the 5.2 MG impoundment was originally constructed for septage but was used for additional leachate containment. Liner components for this impoundment consist of a 60-mil HDPE inner liner underlain by a blanket-type LCRS, a second HDPE geomembrane, and two feet of compacted clay. The LCRS consists of 12 inches of gravel on the impoundment floor and HDPE drainage netting along the sideslopes. The Discharger has proposed cleaning and temporary conversion of this pond to storage for fire suppression water. These WDRs require that a leachate balance be provided to assure that the 5.2 MG impoundment meets the facility-wide needs for leachate collection and disposal.

46. Both Class II surface impoundments were constructed over abandoned unlined ponds which once received leachate and septage. Residual waste effects appear to be causing elevated inorganic constituent levels in lysimeter L-6, south of the 5.2 MG surface impoundment. Background soil-pore liquid quality standards for these impoundments will be established using lysimeter(s) installed in other areas upgradient from the landfill, since these standards were not established prior to discharge to the impoundment. The Discharger has determined that soil types under the various waste management units will not significantly affect background soil pore liquid quality.

47. Nineteen lysimeters were installed by Kleinfelder under the 5.2 MG surface impoundment. However, six of them have been destroyed or damaged and are no longer being monitored. Five lysimeters and ten soil resistivity blocks were installed by ESI under the 1.3 MG surface impoundment. Monitoring in 1994-95 has found VOCs in lysimeters LV-1, LV-2, L-6, LY-1 and LY-2, and xylenes in LY-2.

DESCRIPTION OF THE SITE

Surface Water Hydrology

48. Drainage from the facility is routed to three sedimentation basins, as shown in Attachment C incorporated herein and made part of this Order. The basins and associated sediment control structures were designed and constructed to reduce settleable matter and turbidity levels to appropriate background levels. The former 76 cell, now closed, will become part of the south sedimentation basin system.

49. Discharge from the sediment control structures is to two east-flowing ephemeral streams. Both streams flow into French Ravine, approximately two miles downstream from the site. French Ravine flows year round, receiving tail water from the Nevada Irrigation District's James and Cory ditches throughout most of the year.

50. French Ravine flows southeasterly for approximately two miles before joining Wolf Creek, below the Nevada Irrigation District's Tarr Ditch diversion. Wolf Creek is tributary to the Bear River and Camp Far West Reservoir.

51. The beneficial uses of French Ravine, Wolf Creek, and the Bear River are agricultural supply; recreation; aesthetic enjoyment, ground water recharge; and preservation and enhancement of fish, wildlife, and other aquatic resources. Additional beneficial uses of the Bear River include municipal and industrial supply and hydroelectric power generation.

52. The facility is not within a 100-year flood plain as shown by the Flood Insurance Rate Map for Nevada County (Community Panel No. 060210 0625C, map revision dated 2 July 1987).

53. The site receives an average of 52.9 inches of precipitation per year as measured at Grass Valley (Department of Water Resources (DWR) bulletin entitled "Rainfall Depth-Duration-Frequency For California" Revised November 1982, updated August 1986). The mean Class A pan evaporation rate for this site is 46 inches per year as measured at Nevada City between the years 1949 and 1953. Assuming a pan coefficient of 0.8, the average annual net gain is 16.5 inches. Nevada City is approximately eight miles northeast of the site.

54. The 1000-year, 24-hour precipitation event for the site is estimated to be 10.42 inches. The 100-year, 24-hour precipitation event for the site is estimated to be 8.25 inches based on rainfall data collected from Grass Valley by DWR.

55. There are several small private ponds within one mile of the site. However, the main surface water body is French Ravine.

Ground Water Hydrology

56. Ground water in the region surrounding and underlying the landfill occurs in fractured bedrock and is first encountered at depths ranging from 5 to 80 feet below ground water surface. Most ground water flow is thought to occur in a relatively shallow zone within approximately 250 feet from the surface.

57. Ground water flow conditions are complex. There is some indication of water table conditions in granular soil media. However, there is also indication of confined and/or semi-confined

conditions within certain areas, suggesting that ground water movement is somewhat fracture-controlled. Complications such as considerable lateral transmissivity variations, steep vertical gradients in certain well pair(s), sudden rises in water elevations following periods of precipitation, and the possibility of one or more ground water divides have been interpreted on-site. The Discharger's consultants have suggested that an important ground water divide may extend across the northern part of the Old Landfill Mass.

58. Ground water appears to flow across the site in one dominant direction, generally to the east at a gradient of approximately .08 feet per foot. Topography exercises a strong local influence on the water table, as the water surface generally slopes away from pre-landfill topographic highs toward valleys.

59. Water level data obtained from well pairs MW-4 and MW-4A and MW-6 and MW-6A indicate a downward vertical hydraulic gradient within the weathered bedrock zone. Potential contaminant distribution via fracture-controlled ground water movement through the deeper bedrock zones(s) may need to be evaluated in designing ground water monitoring programs.

60. Ground water elevations vary from approximately 2,250 feet MSL near the southwest boundary to approximately 2,080 feet MSL at the easternmost end of the site. Seasonal ground water fluctuations in existing monitoring wells range between 5 and 20 feet and are generally higher near the steep cut slope south of the landfill. The highest and lowest water level elevations are reached in the spring and late fall respectively.

61. There are several springs and seeps within the permitted site boundary. These include the fracture springs in the vicinity of monitoring wells MW-4 and MW-4A, ephemeral seeps near the toe of the embankment, a buried perennial stream several hundred feet west of the embankment heel, and several buried springs or seeps near the southern edge of the existing landfill mass. There are also several springs on the Lausche property, adjacent to the northeastern corner of the permitted solid waste facility boundary. The combined year round flow from these springs varies between 5 and 25 gpm. These springs are downgradient from the abandoned septage ponds. Inorganic constituent levels in these springs are similar to those found in monitoring wells MW-1 and MW-4A.

62. Ground water quality data obtained from the landfill supply wells DW-1 and DW-2 were used to establish background water quality protection standards for ground water at the site. Data from these wells indicates that underlying ground water is of very good quality. The County plans to replace the supply wells for background monitoring purposes since they are no longer upgradient from the site. Background water quality protection standards for ground water may also have to be revised.

63. There are approximately 50 wells within a one-mile radius of the site that are used for domestic purposes. Adjacent private wells are reportedly screened between 150 and 300 feet below ground water surface. Water yields for these wells are generally less than 18 gpm. The Hidden Valley subdivision, on the southern side of the site, depends on water wells for domestic supply.

64. The beneficial uses of the ground water are domestic, municipal, and agricultural supply.

Geology

65. The site is in the Sierra Nevada Western metamorphic belt. This region is characterized by structurally-controlled northwest-southeast trending ridges that are formed by steeply tilted metamorphosed sedimentary and igneous rocks.

66. The site is within the Bear Mountain-Melones Fault Zone. Faults near the site include the Swain Ravine Fault, about 12 miles west of the site, the Wolf Creek fault, about 0.5 mile east, and another unnamed northeast-trending fault that has recently been mapped by state geologists approximately one-half mile west. The north-trending Melones fault is approximately 17 miles east.

67. There is some evidence of additional on-site faults based on excavation activities near MW-10 and MW-11. At least two wide shear zones also transect the site. A wide shear zone trending N20E passes through the northeastern corner of the site. This shear zone is exposed southwest of the south sedimentation basin. Another shear zone trending N30W has been exposed from the cut slopes near the southern end of the landfill. Excavation of the 76 cell revealed a 50-foot wide zone of soft talc-schist and clay parallel to a shear zone crossing the cell.

68. Major geologic units observed on-site include colluvium, alluvium, diabase, basic intrusives, amphibolite and amphibolite gneiss, and serpentine. All of these are sheared, deformed, and jointed. Exposed materials are generally weak (crumbly) talc-schist and highly weathered serpentine with erratically distributed zones of yellow clay.

69. Site soils overlying the colluvium and alluvium are thin, eroded, and are generally classified as the Aiken stony clay loam. Underlying the colluvium and alluvium is a zone between 10 and 105 feet thick consisting of highly weathered and fractured rocks. Ground water occurs within this zone. Below this weathered zone is slightly weathered to faintly fractured rock. This zone is typically greater than 30 feet thick. The lowermost zone consists of bedrock wherein permeability pathways are fracture-controlled. Fractures tend to close with increasing depth.

70. Surface exposures from excavation activities south and west of the existing landfill mass are highly fractured. Fractures occur in various orientations with general trends from N70W to N10E and from N60E to N80E. The fractures are generally steeply dipping with most fractures being oriented near vertical.

71. Land within 1000 feet of the site is used for agriculture and rural housing. There is an abandoned burn dump previously operated by Grass Valley Disposal approximately one mile southwest of the site.

Existing Facility Conditions

72. In 1987, several volatile organic compounds (VOCs) were detected in ground water monitoring wells MW-1, and MW-4, and MW-4A. Subsequent sampling has verified the presence of VOCs in these and other monitoring wells, including DW-1, MW-2, MW-3, MW-6, MW-6A, MW-8, MW-9, MW-11, MW-12, and MW-13. Several downgradient monitoring wells also contain elevated inorganic constituent levels as compared to the background water quality protection

standards established for the site. However, most inorganic constituent levels are below applicable drinking water standards. Mercury has been detected in well DW-1 and monitoring well MW-4A. The highest reported concentration of mercury in these wells is .4 µg/l. Lead and mercury have been detected in lysimeters installed near the embankment and former White Metals Area.

The level of mercury found in these monitors ranges from 2.2 to 5.6 µg/l. Lead has been detected in lysimeter LY-3 at 50 µg/l.

73. There is currently no means for properly characterizing leachate generated near the base of the old landfill mass. However, leachate generated in this area appears to contain significant concentrations of VOCs and inorganic constituents. Vinyl chloride and total dissolved solids concentrations in one of the seeps sampled in March 1989 near the toe of the embankment were 33 µg/l and 5,000 mg/l, respectively.

74. VOCs detected in downgradient monitoring wells include chloroform, vinyl chloride, trichloroethylene (TCE), tetrachloroethylene (PCE), carbon tetrachloride, 1,1- and 1,2-dichloroethylene, 1,1-dichloroethane, 1,1,1-trichloroethane, benzene, chlorobenzene, and toluene. There appears to be more than one leachate plume originating from the site. Benzene, vinyl chloride, chloroform and carbon tetrachloride are typically detected in monitoring wells downgradient from the landfill embankment whereas TCE and PCE are typically detected in monitoring wells north of the surface impoundments. Moµst of the VOCs detected in the monitoring wells are at relatively low concentrations (less than 10 ppb).

75. Sampling of off-site domestic supplying wells in the Hidden Valley subdivision during 1993, 1994, and 1995 has found evidence of elevated As, Ba, total organic carbon, total dissolved solids, Cr in residential wells. These occurrences may reflect natural variations in local aqueous geochemistry, although the possibility of leachate influence has not been eliminated. In additon the presence of anthropogenic compounds (VOCs) in several residential wells along Wolf Mountain Road is indicative of leachate migrating off-site. Nevada County has been supplying bottled water to some of these households.

76. The Solid Waste Water Quality Assessment Test (SWAT) Report for this site was completed in April 1990. The SWAT report concluded that impacts to water quality have been detected migrating from the site. More recent monitoring of on-site and off-site wells has confirmed the discharges. Therefore, these WDRs require the Discharger to commence Corrective Action monitoring to assess the impacts of the clean-closures of the 76 and White Metals Areas and to prepare and implement a long-term Corrective Action Plan.

77. Review of the Surface Hydrology Summary Report, dated June 1993, and the Liquids Management Report, dated May 1993, found a need for sampling of soils in the Burn Area and Microwave Pond to address sources of surface water contamination. This sampling is still needed. In addition, further sampling and/or removal of contaminated soils from ponds 8 and 9 in the OSPA, or capping of the area, may be necessary. The Discharger may propose to use soils from the OSPA that contain lead at less than designated levels in foundation materials for other WMU closures. If this is done, verification sampling and analyses may be required.

78. Information provided by the site hydrogeologic studies will be used for designing necessary corrective measures. The Compliance Schedule contained in Provision C.15 outlines the time schedule for implementing the Corrective Action Monitoring Program, proposing additional, long-term Corrective Action measures.

79. These WDRs implement Article 5 of Chapter 15 and, in Provision C.15, require the Discharger to design a Corrective Action Monitoring Program that will: 1) characterize leachate generated from the the waste management units, as appropriate; 2) confirm the prevailing ground water flow patterns and document seasonal changes; 3) define the lateral and vertical extent of ground water contamination in off-site areas; 4) evaluate lateral and vertical distribution of contaminants through the deeper fracture sets; propose and install additional monitoring points as needed for characterization and tracking of changes, or show why additional points are not needed; and 5) propose and evaluate feasibility of alternative additional corrective measures.

80. WDRs Order No. 91-229 required the Discharger to submit a Preliminary Corrective Action Plan (CAP) by 15 January 1992 for achieving long-term compliance with Water Quality Protection Standards on a facility-wide basis. This plan has not been submitted, and the Discharger is therefore in violation of Waste Discharge Requirements. Provisions C.15 of these WDRs requires submittal of a CAP and a Corrective Action Monitoring Program, as described in Finding 79, by 26 April 1996.

81. When operating, the landfill received an average of 100 tons per day of refuse, 360 days per year. The Discharger currently operates a municipal waste transfer station, wood/yard waste recycling facility and other recycling facilities on the site, but none of these solid wastes are disposed on site.

82. During excavation for clean-closure of the 76 cell, a leachate line in the adjacent, south face of the OLM was damaged when the face was cut. The Discharger repaired the leachate line and the south slope concurrently with placing interim cover on the 90-91 cell. The slope has been covered with clean, compacted fill, graded to form a foundation layer suitable for final closure of the OLM under Chapter 15 standards, and straw placed for erosion protection.

83. After the Discharger backfilled the White Metals Disposal Area with clean soil, it was graded to a 3:1 slope and constructed to avoid ponding and to control drainage.

84. Closure of this site is proceeding under the requirements of the JPS and the prescriptive and performance standards of Chapter 15.

85. Final closure of the 90-91 Cell is scheduled for completion in 1996 and for all landfill units for 1997.

Certification

86. Chapter 15 requires that a registered civil engineer or engineering geologist certify that all expansion WMUs and facility improvements have been constructed and/or closed in accordance with the prescriptive standards and performance goals of Chapter 15. EMCON has provided Certification Statements for construction of the 1991 cell and the 1.3 MG Class II impoundment.

87. The action to revise WDRs for this site is exempt from the provision of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.), in accordance with Title 14, CCR, Section 15301.

Other Legal References

88. This Order implements:

a. The Water Quality Control Plan, Third Edition, for the Sacramento River Basin and the San Joaquin River Basin;

b. The prescriptive standards and performance goals of Chapter 15, Division 3, Title 23 of the California Code of Regulations, effective 27 November 1984, and subsequent revisions;

c. State Water Resources Control Board Resolution No. 93-62, Policy for Regulations of Discharges of Municipal Solid Waste, adopted 17 June 1993.

PROCEDURAL REQUIREMENTS

89. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.

90. The Board has notified the Discharger and interested agencies and persons of its intention to revise the WDRs for this facility.

91. In a public hearing, the Board heard and considered all comments pertaining to this facility and discharge.

IT IS HEREBY ORDERED that Order No. 91-229 be rescinded and that the County of Nevada, Department of Sanitation, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. Prohibitions

1. The discharge of 'hazardous waste' at this site is prohibited. The discharge of "designated waste" at this facility is prohibited, except for the discharge of leachate from the landfill unit and surface impoundment LCRS, septage, and chemical toilet waste, to the Class II surface impoundments. For the purposes of this Order, the terms 'hazardous waste' and 'designated waste' are defined in Chapter 15.

2. The discharge of wastes of any kind to any Class III waste management units at this site is prohibited.

3. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or ground water is prohibited.

4. The discharge of waste to ponded water from any source is prohibited.

5. The discharge of waste within 100 feet of surface waters is prohibited.

B. Discharge Specifications

General Specifications

1. A minimum separation of 5 feet shall be maintained between wastes or leachates and the highest anticipated elevation of underlying ground water including the capillary fringe.

2. Wastes shall only be discharged into, and shall be confined to, the WMUs specifically designed for their containment.

3. Prior to the discharge of waste to a WMU, all wells within 500 feet of the WMU shall have sanitary seals which meet the requirements of the Nevada County Department of Environmental Health or shall be properly abandoned. A record of the sealing and/or abandonment of such wells shall be sent to the Board and to the State Department of Water Resources.

4. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control.

General WMU Construction

5. Materials used to construct liners, covers, and leachate collection and removal systems shall have appropriate physical and chemical properties to ensure containment of discharged wastes over the operating life, closure, and post-closure maintenance period of the WMUs.

6. The first layer of waste and the slope of the liner must be able to provide for sufficient drainage of leachate to the LCRS to prevent the buildup of hydraulic head on the liner.

7. Clay barriers used in landfill liner or covers shall have a maximum hydraulic conductivity of 1×10^{-6} cm/sec and a minimum relative compaction of 90 percent. Hydraulic conductivities of clay liner materials shall be determined by laboratory tests using solutions with similar properties as the fluids that will be contained. Hydraulic conductivities of clay cover material shall be determined by laboratory tests using water. Hydraulic conductivities determined through laboratory methods shall be confirmed by field testing of the finished liner. Construction methods and quality assurance procedures shall be sufficient to ensure that all parts of the liner and cover meet the hydraulic conductivity and compaction requirements.

8. LCRSs shall be designed, constructed, and maintained to collect twice the anticipated daily volume of leachate generated by the WMU and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of fluid in any LCRS sump shall be kept at or below six (6) inches, or the minimum needed to ensure efficient pump operation.

Supervision and Certification of Construction

9. All containment structures shall be designed and constructed under the direct supervision of a California registered civil engineer or certified engineering geologist and shall be certified by that individual as meeting the prescriptive standards and performance goals of Chapter 15.

Water Quality Protection Standards

10. The Water Quality Protection Standard, as defined in §2550.2 of Chapter 15, shall consist of constituents of concern, their concentration limits, the point(s) of compliance, and all water quality monitoring points. Constituents of concern shall include all waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the WMUs. Concentration limits shall consist of background concentrations of each constituent of concern in each monitoring medium. For each monitoring event, the Discharger shall determine whether there is statistically significant evidence of a release from WMUs and whether the WMUs are in compliance with the Water Quality Protection Standard using procedures specified in §2550.7(e) of Chapter 15. Constituents of concern and monitoring parameters, their concentration limits, the point of compliance, and all water quality monitoring points are specified in Monitoring and Reporting Program No. 96-027, which is attached to and made part of this Order.

Protection from Storm Events

11. Waste management units shall be designed, constructed, and operated to prevent inundation or washout due to floods with a 100-year returned period. Class III landfill units and related containment structures shall be constructed and maintained to prevent, to the greatest extend possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under 100-year, 24-hour precipitation conditions.

12. Precipitation and drainage control systems for Class III waste management units shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 100-year, 24-hour precipitation conditions.

13. Precipitation and drainage control systems for Class II surface impoundments shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 1,000-year, 24-hour precipitation conditions.

14. Surface drainage from on-site and off-site tributary areas and internal site drainage from surface or subsurface sources shall not contact or percolate through wastes.

15. Annually, prior to the anticipated rainy season but no later than **1 October**, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the facility and to prevent surface drainage from contacting or percolating through wastes. The Discharger shall submit, by **15 August** of any year in which it is intended to use wood wastes for erosion control purposes, a proposal and workplan for such use , which shall be approved before these wastes may be used in any given year. The Discharger shall submit an annual report to the Regional Board by **15 November** describing measures taken to comply with this specification.

Landfill Specifications

16. During the rainy season, a minimum one-foot thickness of low permeability cover shall be maintained over all the incompletely-closed landfill units. Intermediate cover for the Old Landfill Mass shall have a maximum hydraulic conductivity of 1×10^{-6} cm/s.

17. Methane and other landfill gases shall be adequately vented, removed from the landfill units, or otherwise controlled to prevent the danger of explosion, adverse health effects, nuisance conditions, or the impairment of beneficial uses of water due to migration through the vadose (Unsaturated) zone. Condensate from the landfill gas collection system shall be discharged to the 5.2 MG Class II surface impoundment.

18. Landfill leachate shall be discharged to the 5.2 MG Class II surface impoundment prior to disposal to approved off-site facilities capable of receiving these wastes.

19. Leachate generation from any WMU shall not exceed 85% of the LCRS design capacity or the sump pump(s) capacity, whichever is lower. If leachate generation exceeds the minimum needed for efficient pump operation, then the Discharger shall notify the Board in writing within seven days. Notification shall include a time table for corrective action necessary to reduce leachate generation.

Surface Impoundment Specifications

20. The Class II surface impoundments shall have composite liner systems consisting, at a minimum, of a synthetic liner of 60 mil minimum thickness underlain by a gravel blanket-type LCRS and two feet of clay material compacted to a maximum hydraulic conductivity of 1×10^{-6} cm/s.

21. The surface impoundments shall be operated to maintain a freeboard of 2.87 feet (2 feet plus the 1000 year 24 hour storm event) incorporating, at a minimum, the design criteria specified in Chapter 15.

22. Any direct-line discharge to a surface impoundment shall have fail-safe equipment or operating procedures to prevent overfilling.

23. The surface impoundments shall be designed, constructed and maintained to prevent scouring and/or erosion of the liner(s) and other containment features at the point of discharge the impoundments and by wave action at the waterline.

24. Leachate removed from a surface impoundment LCRS shall be discharged to the impoundment from which it originated.

25. Leachate generation from any surface impoundment shall not exceed 85% of the design capacity of the LCRS or the sump pump capacity, whichever is less. If leachate generation exceeds this value and/or if the depth of fluid in an LCRS exceeds the minimum needed for efficient pump operation, then the Discharger shall notify the Board in writing within seven days. Notification shall include a time table for remedial action to repair the upper liner of the impoundment or other action to reduce leachate production.

26. Solids which accumulate in the surface impoundments shall be periodically removed to maintain minimum freeboard requirements and to maintain sufficient capacity for landfill and surface impoundment leachate and for the discharge of wastes. Prior to removal of these solids, sufficient samples shall be taken for their characterization and classification pursuant to Article 2 of Chapter 15. The rationale for the sampling protocol used, the results of this sampling, and a rationale for classification of the solids shall be submitted to the Board for review. The solids shall be discharged to appropriate landfill units off-site.

WMU CLOSURE SPECIFICATIONS

27. The closure of each WMU shall be under the direct supervision of a California registered civil engineer or certified engineering geologist. Upon completion of closure of a WMU, a California certified engineering geologist or registered civil engineer familiar with the project shall certify that the closure conforms with the prescriptive standards or performance goals of Chapter 15.

28. Closed WMUs shall be provided with at least two permanent monuments, installed by a licensed land surveyor or a registered civil engineer from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period.

Landfill Closure

29. At closure, each landfill WMU shall receive a final cover which is designed and constructed to function with minimum maintenance and consists, at a minimum, of a two-foot thick foundation layer overlain by a one (1) foot thick low permeability (1×10^{-6} cm/s) clay barrier layer, and finally by a one-foot thick vegetative soil layer, or an engineered equivalent final cover approved by the Board pursuant to Subsections 2510(b) and (c) of Chapter 15. In addition to these requirements, unlined landfill units shall have an appropriate drainage layer between the low permeability and vegetative layers.

30. Vegetation shall be planted and maintained over each closed landfill unit. Vegetation shall be selected to require a minimum of irrigation and maintenance and shall have a rooting depth not in excess of the vegetative layer thickness.

31. Closed landfill units shall be graded to at least a three-percent (3%) grade and maintained to prevent ponding.

32. Areas with slopes greater than 10 percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion.

Surface Impoundment Closure

33. At closure of surface impoundments, all residual wastes, including liquids, sludges, precipitates, settled solids, and liner materials and adjacent natural geologic materials contaminated by wastes, shall be completely removed and discharged to a WMU approved by the Board. If after reasonable attempts to remove contaminated natural geologic materials, the Discharger demonstrates that removal of all remaining contamination is

infeasible, the impoundments may be closed as a landfill, after compaction of the residual wastes, providing: (1) residual wastes are classified as non-hazardous, pursuant to Title 22, CCR, Division 4, Chapter 30, (2) containment features of the impoundment meet Class II landfill construction standards and performance goals as defined by Chapter 15, (3) all liquid wastes are removed or treated to eliminate free liquids, and (4) residual moisture does not exceed the moisture-holding capacity of residual wastes, even under closure conditions.

Use of any subsoils or recycling of any compacted clay materials from the liner of the Microwave Pond or other ponds in construction projects shall be subject to prior approval, and analytical confirmation that the materials do not contain designated levels of metrals or constituents of concern may be required.

Financial Assurance

34. The Discharger shall maintain assurance of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management units. The Discharger also shall maintain an irrevocable closure fund or other means to ensure closure and post-closure maintenance of the waste management units up to and during the postclosure maintenance period.

C. Provisions:

1. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order.

2. The Discharger shall maintain a copy of this Order at the facility and shall make it available at all times to staff, visitors, and regulatory personnel. The site supervisor shall provide copies of this Order to all facility operating personnel, who shall be familiar with its contents.

3. The Discharger shall notify the Board in writing of any proposed change in ownership or responsibility for construction or operation of the waste management units. The Discharger shall also notify the Board of a material change in the character, location, volume of the waste discharge and of any proposed changes in or closure plans. This notification shall be accompanied by an amended Report of Waste Discharge and any technical documents that are needed to demonstrate continued compliance with these WDRs.

4. The Discharger shall comply with Monitoring and Reporting Program No. 96-027, which is attached to and made part of this Order. Monitoring and Reporting Program No. 96-027 requires submittal, by **26 April 1996,** of a proposed Corrective Action Monitoring Program and Water Quality Protection Standard.

5. The Discharger shall maintain legible records of the volume and type of each waste discharged for each landfill unit and the manner and location of each discharge. Such records shall be maintained at the facility or the facility s administration office until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Board and of the State Water Resources Control Board at any time during normal business hours. At the beginning of the post-closure maintenance

period for each of the landfill areas, copies of these records shall be sent to the Regional Board.

6. Within 90 days of the date of this Order, pursuant to Section 2580.9 (b) and (c) of Chapter 15, or as specified in the time schedule in Provision C.15, the Discharger shall submit an amended Report of Waste Discharge which shall contain:

   (a) a summary of data obtained under the Evaluation Monitoring Program;

   (b) an analysis of the nature and extent of the release(s) from the WMUs as presently understood,

   (c) an analysis of the adequacy of the existing monitoring system for purposes of detection and evaluation of releases and monitoring of effects of corrective actions already taken;

   (d) a discussion of alternatives for additional corrective actions and a remedial action feasibility study;

   (e) an analysis of the present conditions of leachate mounding and the leachate wells within the OLM, and a proposal for preventing leachate buildup from impairing the integrity of the embankment (or an analysis showing that dewatering or other measures are unnecessary),

   (f) a contingency plan for maintaining adequate separation between the base liner and ground water in the 90-91 cell in compliance with Chapter 15 and the JPS, or an analysis showing that this will not be necessary under foreseeable conditions,

   (g) a proposal for short-term and long-term corrective actions to achieve compliance with water quality protection standards on a facility-wide basis.

7. The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the State Department of Water Resources Control with regard to the construction, alteration, destruction, or abandonment of all monitoring wells used for compliance with this Order or with Monitoring and Reporting Program No. 96-027, as required by Sections 13750 through 13755 of the California Water Code.

8. The Discharger shall immediately notify the Board of any flooding, equipment failure, slope failure, or other changes in site conditions which could impair the integrity of waste or leachate containment facilities or of precipitation and drainage control structures.

9. The Discharger shall submit to the Board for approval a Final Closure and Post-Closure Maintenance Plan pursuant to the time schedule contained in provision C.15. The Closure and Post-ClosureMaintenancePlan shall describe the methods and controls to be used to assure protection of the quality of surface and ground waters of the area during final operations and during any proposed subsequent use of the land, and must contain initial cost estimates and a financial assurance mechanism for closure and post-closure maintenance. The plan shall be prepared by or under the supervision of a California registered civil engineer or certified engineering geologist and updated periodically, pursuant to Title 14, Chapter 5, Article 3.1 of the California Code of Regulations.

10. The Discharger shall maintain waste containment facilities and precipitation and drainage controls, and shall continue to monitor ground water, leachate from the landfill units, the vadose zone, and surface waters per Monitoring and Reporting Program No. 96-027 , throughout the post-closure maintenance period.

11. The post-closure maintenance period shall continue until the Board determines that remaining wastes in all waste management units will not threaten water quality.

12. The Discharger shall comply with the Standard Provisions and Reporting Requirements dated September 1993, which are incorporated into this Order.

13. The owner of the waste management facility shall have the continuing responsibility to assure protection of usable waters from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and post-closure maintenance period of the waste management units and during subsequent use of the property for other purposes.

14. In the event of any change in ownership of this waste management facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Board.

15. The Discharger shall complete the tasks outlined in these WDRs and the attached Monitoring and Reporting Program No. 96- 027 in accordance with the following time schedule:

Task	Compliance Date
a. Closure Activities	
(See Finding No. 86, Discharge Specification B.27 and Provision C.9)	
(1) Resubmit Final Closure and Post-Closure Maintenance Plan	**15 March 1996**
(2) Complete closure of remaining Class III WMUs and submit certification statement	**31 December 1997**
b. Corrective Action Program	
(See Findings Nos. 11, 15, 33, 46-47,72-76, 78-80, Discharge Specification B.10, and Provisions C.4 and C.6)	
(1) Submit Amended Report of Waste Discharge with Corrective Action Program	**26 April 1996**
(2) Submit Corrective Action Monitoring Proposal and Water Quality Protection Standard	**26 April 1996**

Task	Compliance Date
(3) Submit contingency plans for dewatering and maintaining adequate separation between base liner and ground water in 90-91 cell, and a proposal for preventing leachate buildup in the OLM from threatening embankment stability, or analysis showing that these plans and proposals are not needed	**15 May 1996**
c. Leachate balance	
(See Finding 45)	
(1) Submit a leachate balance report showing that the 5.2 MG impoundment meets and will continue to meet the facility-wide needs for containment and disposal while the 1.3 MG is in use for fire suppression water	**28 March 1996**

17. The Discharger shall comply with all applicable provisions of Chapter 15 that are not specifically referred to in this Order.

18. The Board will review this Order periodically and will revise these requirements when necessary.

I, WILLIAM H. CROOKS, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 26 January 1996.

for Thomas R Pinkos
WILLIAM H. CROOKS, Executive Officer

GW:gw/ldj

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

REVISED MONITORING AND REPORTING PROGRAM NO. 96-027
FOR
COUNTY OF NEVADA
DEPARTMENT OF SANITATION
MCCOURTNEY ROAD LANDFILL AND
CLASS II SURFACE IMPOUNDMENTS
NEVADA COUNTY

Revised Monitoring and Reporting Program (MRP) No. 96-027 is part of Waste Discharge Requirements (WDRs) Order 96-027. WDRs No. 96-027 and the Standard Provisions and Reporting Requirements dated August 1997 require compliance with this revised MRP No. 96-027. Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements, constitutes non-compliance with the WDRs and with the Water Code, which can result in the imposition of civil monetary liability.

The Discharger shall maintain water quality monitoring systems that comply with the provisions of Title 27, California Code of Regulations (CCR), Division 2, Subdivision 1, Chapter 3, Subchapter 3, and are appropriate for detection monitoring, evaluation monitoring, and corrective action monitoring.

A. REQUIRED MONITORING REPORTS

	Report	Due
1.	Groundwater Monitoring	**See Table I**
2.	Annual Monitoring Summary Report	**Annually**
3.	Unsaturated Zone Monitoring	**See Table II**
4.	Leachate Monitoring	**See Table III**
5.	Surface Water Monitoring	**See Table IV**
6.	Facility Monitoring	**As necessary**
7.	Response to a Release (Standard Provisions and Reporting Requirements)	**As necessary**

B. REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in the Standard Provisions and

Reporting Requirements. Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the waste discharge requirements. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format acceptable to the Executive Officer.

Field and laboratory tests shall be reported in each monitoring report. The semiannual monitoring reports shall include a description of the effectiveness of the corrective action program in accordance with §20430(h) of Title 27. Monthly, semiannual, and annual monitoring reports shall be submitted to the Board in accordance with the following schedule for the calendar period in which samples were taken or observations made.

Sampling Frequency	Reporting Frequency	Reporting Periods End	Report Date Due
Monthly	Semiannually	Last Day of Month	**by Semiannual Schedule**
Quarterly	Semiannually	Last Day of Quarter	**by Semiannual Schedule**
Semiannually	Semiannually	30 June 31 December	**31 July** **31 January**
Annually	Annually	31 December	**31 January**

The Discharger shall submit an **Annual Monitoring Summary Report** to the Board covering the previous monitoring year. The annual report shall contain the information specified in the Standard Provisions and Reporting Requirements, and a discussion of compliance with the waste discharge requirements and the Water Quality Protection Standard. The second semiannual monitoring report can be combined with the annual monitoring report.

The results of any monitoring conducted more frequently than required at the locations specified herein or by the waste discharge requirements shall be reported to the Board.

C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

C.1. Water Quality Protection Standard

For each waste management unit (Unit), the Water Quality Protection Standard shall consist of all constituents of concern, the concentration limit for each constituent of concern, the point of compliance, and all water quality monitoring points. The water

quality monitoring points are presented on Attachment C. The Executive Officer shall review and approve the Water Quality Protection Standard, or any modification thereto, for each monitored medium. If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of the Water Quality Protection Standard.

C.2. Constituents of Concern

The constituents of concern include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit. The constituents of concern for all Units at the facility are those listed in Tables I through IV for the specified monitored medium, and Table V. The Discharger shall monitor all constituents of concern every five years, or more frequently as required in accordance with a Corrective Action Program.

a. Monitoring Parameters

Monitoring parameters are constituents of concern that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a Unit The monitoring parameters for all Units are those listed in Tables I through IV for the specified monitored medium.

C.3. Concentration Limits

The concentration limits for anthropogenic compounds (volatile organic compounds, semi-volatile organic compounds, organochlorine pesticides, polychlorinated biphenyls and organophosphorous compounds) shall be laboratory method detection limits.

The concentration limits for naturally occurring constituents of concern shall be determined as follows:

a. By calculation in accordance with a statistical method pursuant to §20415 of Title 27; or

b. By an alternate statistical method acceptable to the Executive Officer in accordance with §20415 of Title 27.

C.4. Point of Compliance

The point of compliance for the water standard at each Unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit.

C.5. Compliance Period

The Compliance Period as defined in Section 264, Chapter 40 of the Code of Federal Regulations (40CFR264) is the number of years equal to the active life of the waste management unit plus the closure period. In the case of the McCourtney Road Landfill the compliance period is 48 years. Nevertheless, Section 20950 of Title 27 requires that the monitoring program shall continue throughout the post closure maintenance period and shall extend as long as the wastes pose a threat to water quality.

D. MONITORING

All groundwater monitoring wells, unsaturated zone monitoring devices, leachate, and surface water monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern as indicated and listed in Tables I through V.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those which cannot be quantified and/or specifically identified. Metals shall be analyzed in accordance with the methods listed in Table V.

D.1. Class II Surface Impoundment Monitoring

The Discharger shall monitor all wastes discharged to the Class II Surface Impoundment and report to the Board as follows:

Parameter	Report in Units of:	Monitoring Frequency	Reporting Frequency
Minimum Freeboard[1]	tenths of foot	Weekly	Semi-annually
Quantity of liquids received	gallons/day	Monthly	Semi-annually
Quantity of liquids transported off-site[2]	gallons/day	Monthly	Semi-annually
Depth of sludge	tenths of foot	Semi-annually	Semi-annually

1 Freeboard , as defined in WDR Order 96-027

2 Report all disposal areas and methods

The Discharger shall report on a semi-annual basis the type and quantity of all chemicals added to the surface impoundment for enhancing settling or for odor control purposes. Representative samples of impoundment contents shall be taken semi-annually and analyzed for the constituents listed below. The depth and location of the sample shall be specified.

Report in Constituent	Sampling and reporting Units of	Frequency
Specific Conductivity (field)	µmhos/cm	Semi-annually
pH (field)	Standard pH units	Semi-annually
Temperature (field)	°C	Semi-annually
Dissolved oxygen	mg/L	Semi-annually
Sulfides	mg/L	Semi-annually
Chemical Oxygen Demand	mg/L	Semi-annually
EPA Methods 8260 and 8270 constituents	µg/L	Semi-annually

D.2. Synthetic Liner Monitoring

All visible portions of the synthetic liner of the Class II impoundment shall be inspected monthly and their condition reported semi-annually to the Board.

D.3. LCRS Monitoring

The leachate collection and removal system (LCRS) the 5.2 MG leachate impoundment shall be tested annually to demonstrate operation in conformance with waste discharge requirements. The results of these annual tests shall be reported to the Board by **31 January** and shall include comparisons with earlier tests made under similar conditions. During the summer of 2001, the Discharger is planning to drain the leachate impoundment, inspect the liner system, repair the liner as needed, and modify the liner system to provide LCRS testing ports. Therefore, the first annual results shall be submitted by **31 January 2002**. The LCRS monitoring results shall be incorporated into the second-half semiannual monitoring reports.

D.4. 90-91 Cell Subdrain Monitoring

The ground water subdrain constructed below the '91 cell base liner empties into a closed sump from which an automated pump conveys the collected water directly to the Class II surface impoundment. The pump has a flow meter, which is checked on a monthly basis to see if the pump has been activated. The subdrain has not collected liquid since it was constructed, and the pump has never been activated by collected leachate since its construction. The Discharger shall continue the monthly check of the flow meter, and maintain records of the flow rate (if any).

D.5. Groundwater Monitoring

The Discharger shall install and operate a groundwater monitoring system that complies with the applicable provisions of §20415 of Title 27 in accordance with a Monitoring Program approved by the Executive Officer. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and

Analysis Plan.

The monitoring network shall consist of background monitoring wells MW-19, DW-2 and PZ-115, detection monitoring wells MW-3 and MW-9 and corrective action monitoring wells MW-2, MW-4, MW-4A, MW-5 MW-6, MW-6A, MW-11, MW-13, MW-14, MW-16, MW-17, MW-20A, MW-20B, MW-22, MW-23, MW-24, PZ-105, DW-1 and MW-A. Monitoring wells MW-7 and MW-8 are damaged and shall be properly abandoned by **1 January 2001**. Monitoring wells MW-10, MW-12, MW-15 and MW-21 have been abandoned or were never constructed.

In addition, VOCs and other probable leachate indicators have been detected in several off-site domestic wells located southeast of the facility on Wolf Mountain Road and Hidden Valley Road. Therefore, at minimum, the following listed domestic wells shall be sampled on a semi-annual basis as part of the Corrective Action Monitoring Program in order to monitor the status of the contaminant plume:

Wolf Mountain Road:	Hidden Valley Road:
25-130-39 (lot 15431)	53-280-14 (lot 13585)
25-130-40 (lot 15483)	
25-140-14 (lot 15552)	
25-140-32 (lot 15719)	
25-140-33 (lot 15779)	
25-140-39 (lot 15543)	
25-140-40 (lot 15605)	
25-140-41 (lot 15653)	

The Discharger shall determine the groundwater flow direction in the uppermost aquifer and in any additional zone of saturation monitored pursuant to this Monitoring and Reporting Program, and report the results semiannually, including the times of highest and lowest elevations of the water levels in the wells.

Hydrographs of each well shall be submitted showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Surveyed elevations shall be relative to mean sea level. Hydrographs of each well shall be prepared quarterly and submitted annually.

Groundwater samples shall be collected from the existing monitoring wells and any additional wells added as part of the approved groundwater monitoring system. Samples shall be collected and analyzed for the monitoring parameters and constituents of concern in accordance with the methods and frequency specified in Table I.

D.6. Unsaturated Zone Monitoring

The Discharger shall install and operate an unsaturated zone monitoring system that

complies with the applicable provisions of §20415 of Title 27 in accordance with a detection monitoring plan approved by the Executive Officer. The Discharger shall collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in the approved Sample Collection and Analysis Plan. The monitoring network shall consist of background lysimeter L-1 and the following detection monitoring lysimeters located adjacent to or beneath the surface impoundments: L-2 through L-15, L-17 through L-19, LV-1 through LV-4, LV-13 and LV-14 and LY-1 through LY-4. The following lysimeters are nonfunctional and shall be properly abandoned by **1 January 2001**: L-16 and LV-5 through LV-12. The collected samples shall be analyzed for the listed constituents in accordance with the methods and frequency specified in Table II. All monitoring parameters shall be graphed so as to show historical trends at each monitoring point. Samples for the constituents of concern specified in Table II shall be collected and analyzed in accordance with the methods listed in Table V every five years.

D.7. Leachate Monitoring

All Unit LCRS sumps shall be inspected monthly for leachate generation. Upon detection of leachate in a previously dry leachate collection and removal system, leachate shall be sampled **immediately** and analyzed for the constituents listed in Table III. Leachate shall then be sampled and analyzed annually during the fourth quarter thereafter, with a retest during the following second quarter if constituents are detected that have not been previously detected. Leachate samples shall be collected and analyzed for the listed constituents in accordance with the methods and frequency specified in Table III. The constituents of concern list shall include all constituents listed in Table V. The quantity of leachate pumped from each sump shall be measured and reported monthly as Leachate Flow Rate (in gallons).

The two LCRS sumps (PS-1 for the Old Landfill Mass and PS-2 for the 90-91 cell) produce leachate on a regular basis. Samples from PS-1 shall be obtained from the hose bib off of the pump line to the Class II surface impoundment. PS-2 does not have a sampling port at the pump station, so samples shall be obtained from the outlet pipe where leachate discharges to the Class II surface impoundment. Results shall be included in the corresponding semi-annual reports.

Leachate which seeps to the surface from the Unit shall be sampled and analyzed for the constituents listed in Table III upon detection. The quantity of leachate shall be estimated and reported as Leachate Flow Rate (in gallons/day). Notification and repairs shall be made in accordance with the Standard Provisions and Reporting Requirements.

D.8. Surface Water Monitoring

The Discharger shall install and operate a surface water monitoring system where appropriate that complies with the applicable provisions of §20415 of Title 27 and has

been approved by the Executive Officer.

For all monitoring points and background monitoring points assigned to surface water monitoring, samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in Table IV. Stations designated for surface water monitoring are SW-105 (background) and SW-101 through SW-104 (compliance). All surface water monitoring samples shall be collected and analyzed for the constituents of concern specified in Table IV every five years. All monitoring parameters shall be graphed so as to show historical trends at each sample location.

By **30 November 2000**, the Discharger shall submit a completed Notice of Intent to comply with the requirements set forth in State Water Resources Control Board Order No. 97-03-DWQ for discharges of storm water associated with industrial activities.

D.9. Leachate Level Monitoring Wells

The Discharger shall monitor liquid levels in the five leachate level monitoring wells installed near the landfill embankment (EW-1 through EW-5) monthly during the period 15 December through 15 April, once in June and once in September. All water level data for these wells shall be reported in the respective semi-annual monitoring reports.

D.10. Facility Monitoring

a. Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess damage to the drainage control system, groundwater monitoring equipment (including wells, etc.), and shall include the Standard Observations contained in the Standard Provisions and Reporting Requirements. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. By **15 November** of each year, the Discharger shall submit an annual report describing the results of the inspection and the repair measures implemented, including photographs of the problem and the repairs.

b. Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following *major storm events*. Necessary repairs shall be completed **within 30 days** of the inspection. The Discharger shall report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs.

The Discharger shall implement the above monitoring program on the effective date of this Program.

Ordered by: _____
GARY M. CARLTON, Executive Officer

16 October 2000
(Date)

TABLE I – GROUNDWATER MONITORING PROGRAM

Parameter	Units	Test Method	Frequency
Field Parameters			
Groundwater Elevation	Feet (100ths), MSL	Field Measure	Quarterly
Temperature	°F	Field Measure	Semi-annually
Specific Conductance	µmhos/cm	Field Measure	Semi-annually
pH	Number	Field Measure	Semi-annually
Turbidity	Turbidity units	Field Measure	Semi-annually
Monitoring Parameters			
Chloride	mg/l	EPA 300.0	Semi-annually
Nitrate-Nitrogen	mg/l	EPA 300.0	Semi-annually
Sulfate	mg/l	EPA 300.0	Semi-annually
Total Dissolved Solids	mg/l	EPA 160.1	Semi-annually
Bicarbonate	mg/l	EPA 130.2	Semi-annually
VOCs[1]	µg/l	EPA 8260B	Semi-annually
Constituents-of-Concern			
Total Organic Carbon	mg/l	EPA 415.1	5 years
Total Alkalinity	mg/l	EPA 310.1	5 years
Bromide	mg/l	EPA 300.0	5 years
SVOCs[1]	µg/l	EPA 8270C	5 years
Inorganics (dissolved)[1]	µg/l	See Table V	5 years
Carbonate	mg/l	EPA 130.2	5 years
Organochlorine Pesticides[1]	µg/l	EPA 8081A	5 years
Polychlorinated Biphenyls (PCBs)[1]	µg/l	EPA 8082	5 years
Organophosphorous Compounds[1]	µg/l	EPA 8141A	5 years

1 See Table V

TABLE II – UNSATURATED ZONE MONITORING PROGRAM

Parameter	Units	Test Method	Frequency
Field Parameters			
Specific Conductance	µmhos/cm	Field Measure	Semi-annually
pH	pH units	Field Measure	Semi-annually
Monitoring Parameters			
Total Dissolved Solids (TDS)	mg/L	EPA 160.1	Semi-annually
Chloride	mg/L	EPA 300.0	Semi-annually
Sulfate	mg/L	EPA 300.0	Semi-annually
Nitrate - Nitrogen	mg/L	EPA 300.0	Semi-annually
VOCs[1]	µg/l	EPA 8260B	Semi-annually
Constituents-of-Concern			
Total Organic Carbon	mg/l	EPA 415.1	5 years
Total Alkalinity	mg/l	EPA 310.1	5 years
Bromide	mg/l	EPA 300.0	5 years
SVOCs[1]	µg/l	EPA 8270C	5 years
Inorganics (dissolved)[1]	µg/l	See Table V	5 years
Carbonate	mg/l	EPA 130.2	5 years
Bicarbonate	mg/l	EPA 130.2	5 years
Organochlorine Pesticides[1]	µg/l	EPA 8081A	5 years
Polychlorinated Biphenyls (PCBs) [1]	µg/l	EPA 8082	5 years
Organophosphorous Compounds[1]	µg/l	EPA 8141A	5 years

[1] See Table V

TABLE III - LEACHATE MONITORING PROGRAM

Parameter	Units	Test Method	Frequency
Field Parameters			
Total Flow	gallons	Field Measure	Monthly
Flow Rate	gallons/day	Field Measure	Monthly
Specific Conductance	µmhos/cm	Field Measure	Semi-annually
pH	pH units	Field Measure	Semi-annually
Monitoring Parameters			
Total Dissolved Solids (TDS)	mg/L	EPA 160.1	Semi-annually
Chloride	mg/L	EPA 300.0	Semi-annually
Sulfates	mg/L	EPA 300.0	Semi-annually
Nitrate - Nitrogen	mg/L	EPA 300.0	Semi-annually
Bicarbonate	mg/L	EPA 130.2	Annually
Constituents-of-Concern			
Total Organic Carbon	mg/L	EPA 415.1	Annually
Carbonate	mg/L	EPA 130.2	Annually
Total Alkalinity	mg/L	EPA 310.1	Annually
Volatile Organic Compounds[1]	µg/L	EPA 8260B	Annually
Semi-Volatile Organic Compounds[1]	µg/L	EPA 8270C	Annually
Organochlorine Pesticides[1]	µg/L	EPA 8081A	Annually
Organophosphorus Compounds[1]	µg/L	EPA 8141A	Annually
Inorganics (dissolved)[1]	mg/L	See Table V	Annually
Polychorinated Biphenyls (PCBs)[1]	mg/L	EPA 8082	Annually

[1] See Table V

TABLE IV - SURFACE WATER MONITORING PROGRAM

Parameter	Units	Test Method	Frequency
Field Parameters			
pH	Number	Field Measure	Twice each winter[1]
Specific Conductance	µmhos/cm	Field Measure	Twice each winter[1]
Temperature	°F	Field Measure	Twice each winter[1]
Turbidity	Turbidity units	Field Measure	Twice each winter[1]
Monitoring Parameters			
Total Suspended Solids	mg/l	EPA 160.1	Twice each winter[1]
Total Dissolved Solids	mg/l	EPA 160.2	Twice each winter[1]
Chloride	mg/l	EPA 300.0	Twice each winter[1]
Nitrate-Nitrogen	mg/l	EPA 300.0	Twice each winter[1]
Sulfate	mg/l	EPA 300.0	Twice each winter[1]
Bicarbonate Alkalinity	mg/l	EPA 130.2	Twice each winter[1]
Constituents-of-Concern			
Total Organic Carbon	mg/l	EPA 415.1	5 years
Carbonate	mg/l	EPA 130.2	5 years
Chemical Oxygen Demand	mg/l	EPA 410.4	5 years
Dissolved Oxygen	mg/l	EPA 360.1/360.2	5 years
Oil and Grease	mg/l	EPA 5520/1664	5 years
Inorganics (dissolved)[2]	µg/l	See Attachment E	5 years

1 The Discharger shall collect surface water samples after the first storm of the rainy season which produces significant flow and during at least one other storm event in the wet season

2 See Table V

TABLE V

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Inorganics (by USEPA Method)[1]:

Aluminum	6010	Arsenic	7061
Antimony	6010	Lead	7421
Barium	6010	Mercury	7470
Beryllium	6010	Nickel	7520
Cadmium	6010	Selenium	7741
Chromium	6010	Thallium	7841
Cobalt	6010	Cyanide	9010
Copper	6010	Sulfide	9030
Iron	6010		
Manganese	6010		
Silver	6010		
Tin	6010		
Vanadium	6010		
Zinc	6010		

[1] Report all peaks identified by the EPA test methods. Groundwater samples shall be analyzed and reported as dissolved. Surface water samples shall be analyzed and reported as total recoverable metals as specified in EPA-600/4-79-020 dated March 1993.

Organochlorine Pesticides (USEPA Method 8081A):

Aldrin
α-BHC
β-BHC
γ-BHC(Lindane)
δ-BHC
Chlorobenzilate
α-Chlordane
γ-Chlordane
Chlodane - not otherwise specified
DBCP
4,4'-DDD
4,4'-DDE
4,4'-DDT
Diallate
Dieldrin
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Endrin ketone
Heptachlor
Heptachlor epoxide
Hexachlorocyclopentadiene
Isodrin
Methoxychlor
Toxaphene

TABLE V, continued

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Polychlorinated Biphenyls (PCBs) (USEPA Method 8082):

Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260
2-Chlorobiphenyl
2,3-Dichlorobiphenyl
2,2',5-Trichlorobiphenyl
2,4',5-Trichlorobiphenyl
2,2'3,5'-Tetrachlorobiphenyl
2,2',5,5'-Tetrachlorobiphenyl
2,3',4,4'-Tetrachlorobiphenyl
2,2',3,4,5'-Pentachlorobiphenyl
2,2',4,5,5'- Pentachlorobiphenyl
2,3,3',4'6-Pentachlorobiphenyl
2,2',3,4,4',5'-Hexachlorobiphenyl
2,2',3,5,5',6-Hexachlorobiphenyl
2,2',4,4',5,5'-Hexachlorobiphenyl
2,2',3,3',4,4',5-Heptachlorobiphenyl
2,2',3,4,4',5,5'-Heptachlorobiphenyl
2,2',3,4,4',5',6-Heptachlorobiphenyl
2,2',3,4',5,5',6-Heptachlorobiphenyl
2,2',3,3',4,4',5,5',6-
Nonachlorobiphenyl

Organophosphorus Compounds (USEPA 8141A):

Chlorpyrifos
Diazinon
Dimethioate
Disulfoton
Ethion
Famphur
Malathion
Parathion
Parathion-ethyl
Parathion-methyl
Phorate

TABLE V, continued

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Volatile Organics (USEPA Method 8260B):

Acetone
Acetonitrile
Acrolein
Acrylonitrile
Allyl chloride (3-Chloropropene)
tert-Amyl ether ether
tert-Amyl methyl ether
Benzene
Bromobenzene
Bromochlormethane
Bromodichloromethane
Bromoform
Bromomethane
tert-Butyl alcohol
n-Butylbenzene
sec-Butylbenzene
tert-Butylbenzene
tert-Butyl ethyl ether
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
Chloroprene
Dibromochloromethane
1,2-Dibromo-3-chloropropane (DBCP)
Dibromomethane
1,2-Dibromoethane (Ethylene dibromide; EDB)
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
trans -1,4-Dichloro-2-butene
Dichlorodiflouromethane
1,1-Dichlorethane
1,2-Dichloroethane
1,1-Dichloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
Dichloromethane
1,2-Dichloropropane
1,3-Dichloropropane
2,2-Dicholropropane
1,1-Dichloropropene
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Ethylbenzene
Ethyl methacrylate
Hexachlorobutadiene
Hexachloroethane
2-Hexanone
Iodomethane
Isobutyl alcohol
di-Isopropyl ether
Methacrylonitrile
Methyl ethyl ketone
4-Methyl-2-pentanone
Methyl tert-butyl ether (MtBE)
Naphthalene
2-Nitropropane
n-Propylbenzene
Propionitrile
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethene (PCE)
Toluene
1,2,4-Trichlorobenzene
1,1,1,-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene (TCE)
Trichloroflouromethane
1,2,3-Trichloropropane
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
Vinyl chloride
Xylene (total)

TABLE V, continued

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Semivolatile Organics (USEPA Method 8270C):

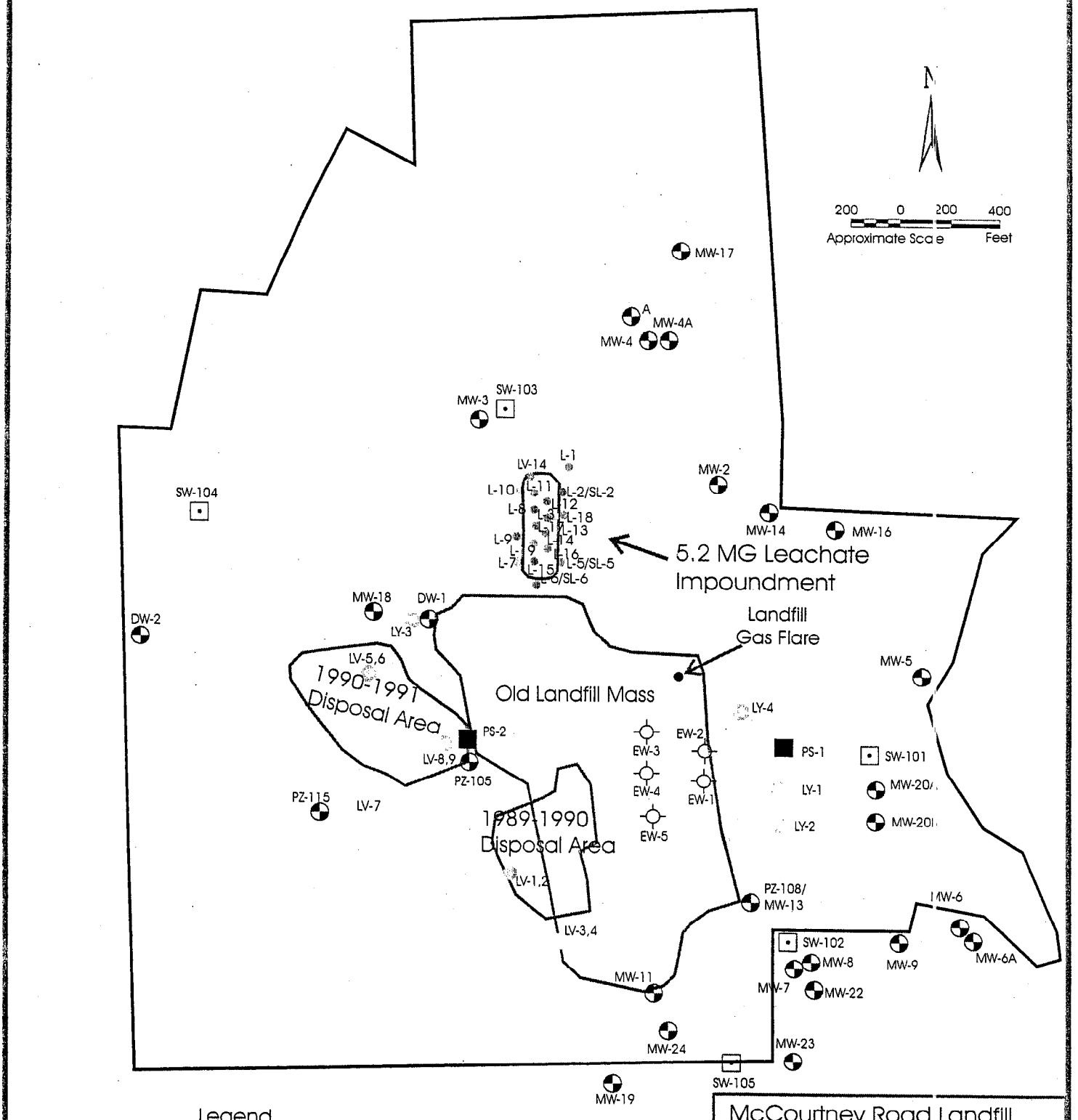
Acenaphthene
Acenaphthylene
Acetophenone
Acetonitrile
2-Acetylaminofluorene
Ametryn
4-Aminobiphenyl
Anthracene
Atrazine
Benzo(a)anthracene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzo(g,h,i)perylene
Benzo(a)pyrene
Benzyl alcohol
Bis(2-chloroethoxy) methane
Bis(2-chloroethyl) ether
Bis(2-ethylhexyl) phthalate
Bis(2-chloro-1-methylether) ether
Bis(4-bromophenyl phenyl) ether
Bromacil
Butyl benzyl phthalate
4-Chlorobenzenamine
4-Chloro-3-methyl phenol
2-Chloronaphthalene
2-Chlorophenol
4-Chlorophebyl phenyl ether
Chrysene
Dacthal
Dibenzo(a,h)anthracene
Di-n-butyl phthalate
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
Diethyl phthalate
2,4-Dichlorophenol
2,6-Dichlorophenol
Diethyl phthalate
O,O-Diethylphosphorothioate
p-(Dimethylamino)azobenzene
7,12-Dimethylben(a)anthracene
3,3-Dimethylbenzidine
2,4-Dimethylphenol
Dimethyl phthalate
1,2-Dinitrobenzene
1,3-Dinitrobenzene
1,4-Dinitrobenzene
4,6-Dinitro-2-methylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
1,4-Dioxane
Diphenylamine
EPTC
Ethyl methanesulfonate
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachloropropene
Indeno(1,2,3-cd)pyrene
Indeno(1,2,3-cd)anthracene
Isophorone
Kepone
Lindane
Methapyrilene
3-Methylchloroanthrene
Methylmethanesulfonate
Methyl methacrylate
2-Methylnaphthalene
2-Methylphenol
3-Methylphenol
4-Methylphenol
Molinate
1,4-Naphthoquinone
1-Naphthylamine
2-Naphthylamine
2-Nitroaniline
3-Nitroaniline
4-Nitroaniline
Nitrobenzene
2-Nitrophenol
4-Nitrophenol
N-Nitrosodi-n-butylamine
N-Nitrosodiethylamine
N-Nitrosodimethylamine

TABLE V, continued

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Semivolatile Organics (USEPA Method 8270C), continued:

N-Nitrosodiphenylamine
N-Nitrosomethylethylamine
N-Nitrosodipropylamine
N-Nitrosopiperidine
N-Nitrosopyrrolidine
5-Nitro-o-toluidine
Pentachlorobenzene
Pentachloronitrobenzene
Pentachlorophenol
Phenacelin
Phenanthrene
Phenol
1,4-Phenylenediamine
Prometon
Pronamide
Pyrene
Safrole
Simazine
Simetryn
2,4,5-Trichlorophenoxyacetic acid
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
o-Toluidine
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
O,O,O-Triethyl Phosphorothioate
sym-Trinitrobenzene
Vinyl acetate



Legend

- SW-101 Surface Water Samping Point
- PS2 Leachate Pump Station
- MW-6 Groundwater Monitoring Well
- L-11 Lysimeter
- EW-5 Leachate Level Monitoring Well
- Property Line

McCourtney Road Landfill
Nevada County
Department of Sanitation
Nevada County

Site Layout and
Summary of Monitoring Points